South Australia

Australian Bureau of Statistics

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JOURNEY TO WORK, SCHOOL AND SHOP, ADELAIDE STATISTICAL DIVISION OCTOBER 1991

MAIN FEATURES

- Use of private motor vehicles has increased markedly over the past ten years relative to other modes of transport. In 1991 almost seven out of ten (69.0 per cent) of the 610,900 persons who travelled to work or place of education usually did so by private motor vehicle, compared with six out of ten (59.9 per cent) in 1981. Over the ten year period the proportion using public transport remained relatively unchanged at around 17 per cent. There has been a noticeable decline in the percentage of those cycling (from 6.4 per cent to 3.3 per cent) and walking (15.8 per cent to 10.4 per cent) to work or place of education. (*See* Table 1.)

- In 1991, only 11.1 per cent of employed persons travelled to work by public transport whereas three-quarters (76.7 per cent) drove a private motor vehicle. Less than one in fourteen (6.9 per cent) travelled as passengers in a private motor vehicle. (*See* Table 2.)

- The two main reasons employed persons did not travel by public transport to work were that it was too inconvenient (32.8 per cent) or their vehicle was used for work purposes (20.1 per cent). No available service was the reason given by almost one in eight (12.0 per cent) employed persons. (*See* Table 5.)

- Almost half (49.2 per cent) of all employed persons travelled 10 or more kilometres to work, while about one–fifth (19.0 per cent) travelled 20 or more kilometres. (*See* Table 2.)

- Of the estimated 217,100 persons studying full–time, 42.5 per cent travelled to their place of education in a private motor vehicle. Almost as many students travelled on public transport (27.2 per cent) as walked (25.4 per cent). (*See* Table 6.)

- The main reason given by students for not travelling by public transport was that their place of education was too close (44.1 per cent). Almost one in nine (10.7 per cent) said that there was no available service. (*See* Table 9.)

- Students' place of education tended to be close to their home with 51.7 per cent having to travel less than 3 kilometres. Most (58.1 per cent) took less than 15 minutes to get to their educational institution. (*See* Tables 6 and 8.)

- Almost three–quarters of all households (73.7 per cent) did their main shopping during normal hours from Monday to Friday. Saturday was the shopping day for 13.2 per cent while 12.0 per cent did their main shopping on Thursday night. (*See* Table 10.)

- Of the 250,100 persons who said they regularly used public transport, over two–thirds (69.4 per cent) also said they were entitled to concessional travel. (*See* Table 11.)

NOTES

This publication contains results from a survey of journey to work, school and shop conducted throughout the Adelaide Statistical Division during October 1991 together with results from a similar survey conducted in 1981 . It contains information relating to people's mode of transport to work, school and shop, distance travelled, time taken and time of departure. Information is also available on reasons people chose not to use public transport. Details regarding shopping trips include day of week of the main trip and shopping centre visited. Additional data may be available on request. Data quality and explanatory notes are located on pages 7 and 8 respectively.

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INQUIRIES

- *for more information about statistics in this publication and the availability of related unpublished statistics,* contact Gary Niedorfer on Adelaide (08) 237 7379 or any ABS State Office.

- *for information about other ABS statistics and services* please contact Information Services on Adelaide (08) 237 7100, call at 55 Currie Street, Adelaide, or write to Information Services, ABS, GPO Box 2272, Adelaide SA 5001.

TABLE 1 – PERSONS EMPLOYED OR STUDYING: MAIN FORM OF TRANSPORT TO WORK/PLACE OF EDUCATION ADELAIDE STATISTICAL DIVISION, 1981 AND 1991

	1981 (a)				*1991 (b)*			
Main form of transport	*Males*	*Females*	*Persons*		*Males*	*Females*	*Persons*	
	'000	*'000*	*'000*	*per cent*	*'000*	*'000*	*'000*	*per cent*
Public transport:								
Bus	32.9	39.3	72.1	13.9	40.5	43.8	84.3	13.8
Other public transport	11.7	6.8	18.4	3.6	10.3	8.1	18.4	3.0
Total public transport	*44.5*	*46.0*	*90.6*	*17.4*	*50.8*	*51.9*	*102.7*	*16.8*
Private transport:								
Motor vehicle;								
Car driver	162.3	64.3	226.5	43.5	194.5	117.5	312.0	51.1
Car passenger	34.2	41.4	75.6	14.5	48.4	55.6	104.1	17.0
Motor cycle	9.6	** 0.3	9.9	1.9	5.0	** 0.4	5.4	0.9
Bicycle	23.5	9.9	33.4	6.4	16.5	3.9	20.4	3.3
Walk	39.7	42.4	82.1	15.8	32.9	30.8	63.7	10.4
Other private transport	** 0.8	* 1.5	2.3	0.5	2.1	** 0.4	2.5	0.4
Total private transport	*270.0*	*159.7*	*429.8*	*82.6*	*299.4*	*208.8*	*508.2*	*83.2*
Total transport	**314.6**	**205.8**	**520.4**	**100.0**	**350.2**	**260.7**	**610.9**	**100.0**

(a) Includes both main forms of transport to work and place of education for the 685 people who were both employed and studied in 1981. (b) Includes both main forms of transport to work and place of education for the 4,102 people who were both employed and studied in 1991.

TABLE 2 – EMPLOYED PERSONS: MAIN FORM OF TRANSPORT TO WORK BY DISTANCE TRAVELLED ADELAIDE STATISTICAL DIVISION, 1991

	Distance travelled (kilometres)										
Main form of transport	*Less than 1*	*1 to less than 3*	*3 to less than 5*	*5 to less than 10*	*10 to less than 15*	*15 to less than 20*	*20 or or more*	*Variable*	*Not known*	*Total employed*	
	'000	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*per cent*
Public transport:											
Bus	** –	2.3	4.7	9.1	7.1	5.4	4.7	** 0.1	** 0.5	33.9	8.6
Other public transport	** –	** –	** 0.4	* 1.3	2.3	1.6	4.2	** –	** –	9.8	2.5
Total public transport	** –	*2.3*	*5.1*	*10.4*	*9.3*	*7.1*	*8.9*	** *0.1*	** *0.5*	*43.7*	*11.1*
Private transport:											
Motor vehicle;											
Car driver	4.3	16.9	31.5	63.0	51.4	40.1	58.4	26.5	4.6	296.7	75.4
Car passenger	** 0.3	* 1.2	3.8	7.0	3.6	3.5	5.4	2.0	** 0.4	27.2	6.9
Motor cycle	** –	** 0.4	** 0.4	** 0.8	* 1.5	** 0.7	1.6	** –	** –	5.3	1.3
Bicycle	** 0.5	2.7	2.9	2.4	* 1.3	** 0.4	** 0.1	** –	** –	10.4	2.6
Walk	3.6	3.9	** 0.7	** 0.4	** –	** –	** –	** –	** –	8.6	2.2
Other private transport	** –	** 0.1	** 0.3	** 0.1	** 0.2	** –	** 0.3	** 0.8	** –	1.8	0.5
Total private transport	*8.8*	*27.1*	*39.5*	*73.8*	*58.0*	*44.7*	*65.8*	*29.3*	*5.0*	*350.0*	*88.9*
Total transport:											
'000	**8.8**	**27.5**	**44.6**	**84.2**	**67.3**	**51.7**	**74.6**	**29.4**	**5.5**	**393.7**	..
Per cent	**2.2**	**7.0**	**11.3**	**21.4**	**17.1**	**13.1**	**19.0**	**7.5**	**1.4**	..	**100.0**

TABLE 3 – EMPLOYED PERSONS: MAIN FORM OF TRANSPORT TO WORK BY TIME OF DEPARTURE ADELAIDE STATISTICAL DIVISION, 1991

	Time of departure										
Main form of transport	*Before 7.00 am*	*7.00 to 7.29 am*	*7.30 to 7.59 am*	*8.00 to 8.29 am*	*8.30 to 8.59 am*	*9.00 am to 3.59 pm*	*4.00 pm to midnight*	*Depends on shift*	*No usual time*	*Total employed*	
	'000	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*per cent*
Public transport:											
Bus	5.3	6.4	6.8	7.6	1.9	1.7	** 0.1	* 1.4	2.7	33.9	8.6
Other public transport	* 1.1	2.7	2.4	1.8	** 0.3	** 0.6	** –	** 0.4	** 0.6	9.8	2.5
Total public transport	*6.4*	*9.2*	*9.2*	*9.4*	*2.1*	*2.3*	*** 0.1*	*1.7*	*3.2*	*43.7*	*11.1*
Private transport:											
Motor vehicle;											
Car driver	50.6	41.6	50.9	53.7	28.4	18.0	6.3	17.9	29.3	296.7	75.4
Car passenger	5.1	4.7	5.4	5.2	2.5	*1.3	**0.3	*1.4	*1.3	27.2	6.9
Motor cycle	*1.3	**0.3	*1.3	**0.5	** –	**0.4	** –	** –	*1.4	5.3	1.3
Bicycle	3.0	1.9	1.8	* 1.3	* 1.1	** 0.1	** –	** 0.4	* 0.9	10.4	2.6
Walk	* 1.2	** 0.7	* 1.1	2.4	* 1.1	** 0.3	** 0.5	** 0.3	* 1.2	8.6	2.2
Other private transport	** 0.5	** 0.5	** –	** –	** 0.1	** –	** –	** 0.5	** 0.1	1.8	0.5
Total private transport	*61.6*	*49.6*	*60.5*	*63.2*	*33.2*	*20.1*	*7.1*	*20.4*	*34.3*	*350.0*	*88.9*
Total transport:											
'000	**68.0**	**58.8**	**69.8**	**72.5**	**35.3**	**22.4**	**7.3**	**22.2**	**37.5**	**393.7**	..
Per cent	**17.3**	**14.9**	**17.7**	**18.4**	**9.0**	**5.7**	**1.9**	**5.6**	**9.5**	..	**100.0**

TABLE 4 – EMPLOYED PERSONS: MAIN FORM OF TRANSPORT TO WORK BY TIME TAKEN FOR JOURNEY ADELAIDE STATISTICAL DIVISION, 1991

	Time taken (minutes)								
Main form of transport	*1 to 14*	*15 to 29*	*30 to 59*	*60 to 89*	*90 or more*	*Variable*	*Not known*	*Total*	
	'000	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*per cent*
Public transport:									
Bus	* 1.4	11.8	15.2	4.7	** 0.3	** 0.5	** –	33.9	8.6
Other public transport	** 0.4	2.0	5.3	2.2	** –	** –	** –	9.8	2.5
Total public transport	*1.8*	*13.7*	*20.5*	*6.9*	*** 0.3*	*** 0.5*	** –	*43.7*	*11.1*
Private transport:									
Motor vehicle;									
Car driver	77.4	108.2	83.3	5.5	** 0.3	21.8	** 0.3	296.7	75.4
Car passenger	8.1	10.2	5.7	* 0.9	** 0.3	2.0	** –	27.2	6.9
Motor cycle	* 1.5	1.7	1.8	** 0.3	** –	** –	** –	5.3	1.3
Bicycle	3.5	4.6	2.2	** 0.1	** –	** –	** –	10.4	2.6
Walk	4.9	2.1	1.6	** –	** –	** –	** –	8.6	2.2
Other private transport	** 0.5	** 0.1	** 0.5	** –	** –	** 0.6	** –	1.8	0.5
Total private transport	*95.9*	*126.9*	*95.1*	*6.8*	*** 0.6*	*24.4*	*** 0.3*	*350.0*	*88.9*
Total transport:									
'000	**97.7**	**140.7**	**115.6**	**13.7**	** 0.8	**25.0**	** 0.3	**393.7**	..
Per cent	**24.8**	**35.7**	**29.4**	**3.5**	** 0.2	**6.3**	** 0.1	..	**100.0**

TABLE 5 – PERSONS WHO DO NOT USUALLY TRAVEL TO WORK ON PUBLIC TRANSPORT: REASON NOT USED BY REGION OF USUAL RESIDENCE, ADELAIDE STATISTICAL DIVISION, 1991(a)

	Region					
Reason	*Northern*	*Western*	*Eastern*	*Southern*	*Total persons*	
	'000	*'000*	*'000*	*'000*	*'000*	*per cent*
Too inconvenient	36.2	22.8	22.1	33.2	114.4	32.8
Vehicle used for work purposes	19.5	16.1	13.3	21.0	69.9	20.1
No service at all	18.6	5.5	5.2	12.4	41.6	12.0
Takes too long	7.6	7.1	6.8	11.7	33.1	9.5
Not considered	10.0	6.3	5.7	11.4	33.4	9.6
Infrequency of service	4.2	2.6	2.2	5.6	14.5	4.2
Need to transfer	2.9	3.0	* 1.4	* 1.5	8.9	2.6
Other	9.8	7.1	7.0	8.8	32.7	9.4
Total	*108.8*	*70.6*	*63.6*	*105.6*	*348.6*	*100.0*

(a) Excludes 1,400 persons who use private transport as their main method and public transport as their secondary method.

TABLE 6 – PERSONS STUDYING: MAIN FORM OF TRANSPORT TO PLACE OF EDUCATION BY DISTANCE TRAVELLED ADELAIDE STATISTICAL DIVISION, 1991

	Distance travelled (kilometres)									
Main form of transport	*Less than 1*	*1 to less than 3*	*3 to less than 5*	*5 to less than 10*	*10 to less than 15*	*15 to less than 20*	*20 or more*	*Variable*	*Total studying*	
	'000	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*per cent*
Public transport	* 1.2	8.5	11.0	17.3	9.0	4.3	6.6	* 1.1	59.0	27.2
Private transport:										
Motor vehicle;										
Driver (a)	** 0.1	* 0.9	* 1.3	4.8	3.0	1.9	3.1	** 0.3	15.4	7.1
Passenger	14.9	26.0	17.3	11.5	3.5	1.7	* 1.3	** 0.7	76.9	35.4
Bicycle	2.5	5.7	* 1.5	** 0.4	** –	** –	** –	** –	10.0	4.6
Walk	37.7	14.7	2.2	** 0.4	** –	** –	** –	** 0.1	55.1	25.4
Other private transport	** 0.1	** –	** –	** 0.3	** –	** –	** 0.1	** 0.1	** 0.7	** 0.3
Total private transport	*55.3*	*47.3*	*22.3*	*17.4*	*6.5*	*3.5*	*4.5*	* 1.2	*158.2*	*72.8*
Total transport:										
'000	**56.5**	**55.8**	**33.4**	**34.7**	**15.5**	**7.9**	**11.2**	**2.2**	**217.1**	..
Per cent	**26.0**	**25.7**	**15.4**	**16.0**	**7.2**	**3.6**	**5.1**	**1.0**	..	**100.0**

(a) Includes 141 persons who rode motor cycles to their place of education.

TABLE 7 – PERSONS STUDYING: MAIN FORM OF TRANSPORT TO PLACE OF EDUCATION BY TIME OF DEPARTURE ADELAIDE STATISTICAL DIVISION, 1991

	Time of departure						
Main form of transport	*Before 8.00 am*	*8.00 to 8.29 am*	*8.30 to 8.59 am*	*9.00 am or later*	*No usual time*	*Total studying*	
	'000	*'000*	*'000*	*'000*	*'000*	*'000*	*per cent*
Public transport	21.9	25.1	4.5	* 1.5	6.0	59.0	27.2
Private transport:							
Motor vehicle;							
Driver (a)	*1.2	3.0	3.1	1.6	6.5	15.4	7.1
Passenger	5.2	23.4	47.4	** 0.4	** 0.5	76.9	35.4
Bicycle	* 1.1	4.0	4.2	** 0.1	** 0.7	10.0	4.6
Walk	** 0.6	21.1	32.4	** 0.3	** 0.8	55.1	25.4
Other transport	** 0.1	** 0.2	** 0.3	** –	** –	** 0.7	** 0.3
Total private transport	*8.3*	*51.6*	*87.4*	*2.4*	*8.5*	*158.2*	*72.8*
Total transport:							
'000	**30.2**	**76.7**	**91.9**	**3.9**	**14.5**	**217.1**	..
Per cent	**13.9**	**35.3**	**42.3**	**1.8**	**6.7**	..	**100.0**

(a) Includes 141 persons who rode motor cycles to their place of education.

TABLE 8 – PERSONS STUDYING: MAIN FORM OF TRANSPORT TO PLACE OF EDUCATION BY TIME TAKEN FOR JOURNEY ADELAIDE STATISTICAL DIVISION, 1991

	Time taken (minutes)							
Main form of transport	*1 to 14*	*15 to 29*	*30 to 44*	*45 to 59*	*60 or more*	*Variable or not known*	*Total studying*	
	'000	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*per cent*
Public transport	*9.4*	*16.8*	*17.6*	*6.6*	*8.1*	*** 0.5*	*59.0*	*27.2*
Private transport:								
Motor vehicle;								
Driver (a)	3.2	7.4	3.4	** 0.7	** 0.5	** 0.3	15.4	7.1
Passenger	63.0	10.6	2.4	** 0.5	** 0.4	** –	76.9	35.4
Bicycle	8.1	1.8	** 0.1	** –	** –	** –	10.0	4.6
Walk	42.1	11.4	* 1.1	** 0.1	** 0.2	** 0.1	55.1	25.4
Other transport	** 0.3	** 0.1	** 0.1	** –	** –	** 0.1	** 0.7	** 0.3
Total private transport	*116.7*	*31.3*	*7.1*	** 1.3*	** 1.2*	*** 0.6*	*158.2*	*72.8*
Total transport:								
'000	**126.1**	**48.1**	**24.7**	**7.9**	**9.2**	*** 1.1**	**217.1**	**..**
Per cent	**58.1**	**22.2**	**11.4**	**3.6**	**4.3**	*** 0.5**	**..**	**100.0**

(a) Includes 141 persons who rode motor cycles to their place of education.

TABLE 9 – PERSONS WHO DO NOT USUALLY TRAVEL TO THEIR PLACE OF EDUCATION ON PUBLIC TRANSPORT: REASON NOT USED BY REGION OF USUAL RESIDENCE, ADELAIDE STATISTICAL DIVISION, 1991(a)

	Region					
Reason	*Northern*	*Western*	*Eastern*	*Southern*	*Total persons*	
	'000	*'000*	*'000*	*'000*	*'000*	*per cent*
Place of education too close	29.6	11.7	5.7	21.7	68.6	44.1
Too inconvenient	5.1	3.8	4.7	6.6	20.2	13.0
Student too young to use services without supervision	5.7	3.0	3.1	4.7	16.4	10.6
No service at all	4.9	* 1.5	3.0	7.2	16.6	10.7
Not considered	2.8	2.6	** 0.4	3.7	9.6	6.1
Takes too long	3.5	* 0.9	2.3	1.9	8.6	5.6
Other	4.8	3.4	2.9	4.4	15.4	9.9
Total	*56.4*	*26.8*	*22.1*	*50.3*	*155.5*	*100.0*

(a) Excludes 2,700 persons who use private transport as their main method and public transport as their secondary method.

TABLE 10 – HOUSEHOLDS: DESTINATION OF MAIN SHOPPING TRIP BY WHEN TRIP WAS UNDERTAKEN ADELAIDE STATISTICAL DIVISION, 1991(a)

	Day of the week						
Destination	*Monday to Friday normal hours*	*Thursday night*	*Friday night*	*Saturday*	*Other*	*Total households*	
	'000	*'000*	*'000*	*'000*	*'000*	*'000*	*per cent*
Adelaide (city)	8.0	** 0.1	* 1.2	3.0	** –	12.4	3.8
Arndale	6.8	1.9	..	* 1.3	** –	10.0	3.1
Colonnades	5.1	** 0.7	..	** 0.1	** –	5.9	1.8
Elizabeth	9.4	* 0.9	..	* 1.1	** –	11.5	3.5
Gawler	4.1	** 0.8	..	** 0.4	** –	5.3	1.6
Marion	9.4	* 1.1	..	*1.0	** –	11.5	3.5
Parabanks	7.2	* 1.2	..	* 1.3	** –	9.7	3.0
Port Adelaide	4.3	** 0.8	..	* 1.5	** –	6.5	2.0
Tea Tree Plaza	8.3	2.5	..	1.7	** –	12.4	3.8
West Lakes	7.7	* 1.0	..	1.6	** –	10.4	3.2
Other	170.5	28.4	** 0.5	30.0	1.8	231.3	70.8
Total:							
'000	*240.7*	*39.4*	*1.7*	*43.2*	*1.8*	*326.8*	..
Per cent	*73.7*	*12.0*	*0.5*	*13.2*	*0.6*	..	*100.0*

(a) Excludes 64,900 households which either did not do their own shopping or did not shop in the week prior to the survey.

TABLE 11 – PERSONS WHO REGULARLY USE PUBLIC TRANSPORT: PUBLIC TRANSPORT CONCESSION ENTITLEMENT BY AGE AND SEX, ADELAIDE STATISTICAL DIVISION, 1991

	Receive concession			*Don't receive concession (a)*			*Total persons*			
Age (years)	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	
	'000	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*'000*	*per cent*
5–9	2.4	3.2	5.6	** 0.5	** 0.3	** 0.7	2.9	3.4	6.3	2.5
10–14	12.8	12.7	25.5	** 0.9	** 0.4	* 1.3	13.6	13.1	26.7	10.7
15–19	17.7	17.4	35.1	1.8	5.0	6.8	19.5	22.4	41.9	16.8
20–24	7.2	9.1	16.3	6.1	5.3	11.4	13.2	14.5	27.7	11.1
25–29	2.7	3.6	6.3	4.7	6.0	10.8	7.4	9.6	17.1	6.8
30–34	2.5	3.3	5.8	3.4	6.4	9.8	5.8	9.7	15.6	6.2
35–39	1.8	2.3	4.0	3.5	4.7	8.2	5.3	6.9	12.2	4.9
40–44	1.6	* 1.5	3.0	2.5	5.1	7.6	4.0	6.6	10.7	4.3
45–49	* 1.0	1.9	2.9	2.5	4.8	7.3	3.5	6.7	10.2	4.1
50–54	* 1.3	3.5	4.8	* 1.2	4.7	5.9	2.5	8.3	10.7	4.3
55–59	1.6	3.1	4.7	* 1.2	2.9	4.1	2.8	6.0	8.8	3.5
60–64	3.4	8.4	11.8	** 0.6	** 0.9	1.5	4.0	9.3	13.3	5.3
65 and over	16.2	31.4	47.6	* 0.9	** 0.3	* 1.2	17.1	31.7	48.8	19.5
Total:										
'000	*72.0*	*101.5*	*173.5*	*29.8*	*46.9*	*76.6*	*101.8*	*148.3*	*250.1*	..
Per cent	..	..	*69.4*	..	..	*30.6*	*40.7*	*59.3*	..	*100.0*

(a) Includes 820 persons who did not know whether they were entitled to concessional travel on public transport.

DATA QUALITY

Reliability of the estimates

The estimates provided in this publication may be subject to two types of error.

Non–sampling errors

Inaccuracies may occur because of imperfections in reporting by respondents, and errors made in coding and processing the data. These errors can occur whether the estimates are derived from a sample or a complete enumeration. Every effort is made to reduce non–sampling error to a minimum by careful design of questionnaires, intensive training and supervision of interviewers, and effective operating procedures.

Sampling error

This is the difference which would be expected between the estimate and the corresponding figure that would have been obtained from a collection based on the whole population, using the same questionnaires and procedures.

Since the estimates in this publication are based on information obtained from occupants from a sample of dwellings they are subject to sampling variability; that is, they may differ from the figures that would have been produced if all dwellings had been included in the survey. One measure of the likely difference is given by the standard error, which indicates the extent to which an estimate might have varied by chance because only a sample of dwellings was included. There are about two chances in three that the sample estimate will differ by less than one standard error from the figure that would have been obtained if all dwellings had been included, and about nineteen chances in twenty that the difference will be less than two standard errors.

A standard error expressed as a percentage of the estimate is known as the 'relative standard error'. For example, if an estimate of 5,000 households has a standard error of 790, then the estimate has a relative standard error of $^{790}/_{5,000} \times 100 = 15.8$ per cent. The relative standard error is a useful measure in that it provides an immediate indication of the percentage errors likely to have occurred due to sampling.

Standard errors of estimates

The table below gives standard errors for general application to estimates of numbers of persons and households. These figures will not give a precise measure of the standard error of a particular estimate, but they will provide an indication of its magnitude.

The size of the standard error increases with the level of the estimate, so that the larger the estimate the larger is the standard error. However, it should be noted that the larger the sampling estimate the smaller will be the standard error in percentage terms. Thus, larger sample estimates will be relatively more reliable than small estimates.

Very small estimates are subject to such high standard errors (relative to the size of the estimate) as to detract seriously from their value for most reasonable uses. Only estimates with relative standard errors less than 40 per cent are considered sufficiently reliable for most purposes. Estimates with relative standard errors greater than 40 per cent have been included but are indicated with the symbol **. Estimates with relative standard errors between 30 and 40 per cent are indicated with *.

An example of the calculation and use of standard errors is as follows.

From Table 1, in 1991 an estimated 63,700 persons walked to work or place of education. An estimate of 63,700 has a standard error of between 2,100 and 2,750 persons. By interpolation it can be seen that the estimate has a standard error of about 2,300.

There are therefore about two chances in three (66.7 per cent) that the number that would have been produced if all dwellings had been included in the survey lies in the range 61,400 to 66,000. There are about 19 chances in 20 (95 per cent) that the number lies between 59,100 and 68,300.

Percentages formed from the ratio of two estimates of the same type (such as percentages) are also subject to sampling error. The size of the error depends on the accuracy of both the numerator (x) and the denominator (y). The formula for the relative standard error (RSE) of a percentage is given below.

$$RSE(^{x}/_{y}) = \sqrt{[(RSE(x)]^2 - [(RSE(y)]^2}$$

STANDARD ERRORS OF ESTIMATES OF PERSONS AND HOUSEHOLDS, SOUTH AUSTRALIA

Size of estimate (households or persons)	*Standard error of estimate (number)*	*Relative standard error (per cent)*
500	270	53.5
700	320	45.6
1,000	380	38.1
1,500	450	30.2
2,000	520	26.2
3,000	630	20.9
4,000	720	18.0
5,000	790	15.8
6,000	850	14.2
8,000	980	12.2
10,000	1,100	10.8
20,000	1,450	7.2
30,000	1,700	5.7
40,000	1,900	4.8
50,000	2,100	4.2
100,000	2,750	2.7
200,000	3,550	1.8
300,000	4,050	1.4
400,000	4,550	1.1
500,000	4,900	1.0
1,000,000	6,200	0.6

EXPLANATORY NOTES

Introduction

This publication contains results from a survey of journey to work, school and shop conducted throughout the Adelaide Statistical Division during October 1991 as a supplement to the monthly population survey (described in *The Labour Force, Australia* (6203.0)). It was conducted at the request of the State Transport Authority and is similar to a survey conducted in 1981.

2. Information was collected from individuals and households about their mode of transport to work, place of education and shop, distance travelled, time taken and time of departure. Reasons people chose not to use public transport were also collected. Details of household shopping include day of week of the main trip, shopping centre visited and reason for choosing the centre.

Survey methodology

3. The survey was conducted using a multi–stage area sample of about 3,400 private dwellings (houses, flats, etc.). All non–private dwellings (hospitals, hotels, motels, etc.) were excluded. Information was obtained from any responsible adult member of the household by carefully selected and trained interviewers. The sample covers about nine–tenths of one per cent of households in South Australia.

Scope

4. The survey includes all usual residents of private dwellings aged 5 years and over except:

(a) members of the permanent defence forces;

(b) members of non–Australian defence forces (and their dependants) stationed in Australia; and

(c) certain diplomatic personnel of foreign governments, customarily excluded from census and estimated populations.

Definitions

5. A *household* is a group of residents of a dwelling who share common facilities and meals or who consider themselves to be a household. It is possible for a dwelling to contain more than one household, for example where regular provision is made for groups to take meals separately and where persons consider their households to be separate.

6. *Employed persons* are aged 15 years and over and usually work 15 hours or more a week.

7. *Persons studying* are aged from 5 to 59 years and attend an educational institution on a full–time basis.

8. The *main form of transport* is the one used to travel the greatest distance during the trip.

9. *Place of education* is the school, college or university at which the person studies full–time.

10. *Public transport* is defined as any kind of bus (State Transport Authority, private bus lines, community bus services), train and tram service available to the public. Access cab taxis are also included but standard taxis are excluded.

11. *Private transport* is defined as motor vehicles including cars, trucks, vans, utilities and motor cycles (either as driver or passenger) as well as standard taxis, bicycles, walking and any other non–public transport.

12. *Destination of main shopping trip* is the location where the value of food and grocery items bought was greatest.

13. The four regions of the Adelaide Statistical Division consist of the following groups of Statistical Local Areas: *Northern* – Elizabeth, Enfield (Part B), Gawler, Munno Para, Salisbury, Tea Tree Gully; *Western* – Enfield (Part A), Henley and Grange, Hindmarsh, Port Adelaide, Thebarton, West Torrens, Woodville; *Eastern* – Adelaide, Burnside, Campbelltown, East Torrens, Kensington and Norwood, Payneham, Prospect, St Peters, Stirling, Unley, Walkerville; *Southern* – Brighton, Glenelg, Happy Valley, Marion, Mitcham, Noarlunga, Willunga.

Related publications

14. The ABS produces a wide range of publications of social and demographic statistics. Other ABS publications which relate to this survey topic include:

Travel to Work, School and Shop, Victoria, October 1984 (9201.2)
Travel to Work, School and Shop in the Adelaide Statistical Division, October 1981 (9201.4)

Unpublished data

15. In some cases the ABS can make available information from this survey which is not published. This may include data relating to cost of public transport and car parking, access to concessional and free public transport, additional forms of transport used and whether the journey is through the city. In general, a charge is made for providing unpublished information. For further information please phone Gary Niedorfer on (08) 237 7379.

Symbols and other usages

. .	not applicable
–	nil or rounded to zero
*	use estimate with caution, relative standard error between 30 and 40 per cent
**	estimate subject to variability too high for most practical purposes

16. Figures have been rounded, and discrepancies may occur between sums of the component items and totals shown. Published proportions are calculated prior to rounding of figures and, therefore, some discrepancies may exist between published proportions and those that could be calculated from the rounded figures.

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